

G1 metal-containing compound, (4) a selectivity enhancer selected from the group consisting of lead, bismuth, thorium, gallium, tin, antimony, germanium, arsenic, cadmium, mercury, and combinations of two or more thereof, and (5) an inorganic support selected from the group consisting of silica, alumina, spinel, and combinations of two or more thereof; said palladium, selectivity enhancer, and alkali metal or alkali metal-containing compound are each present in a sufficient amount to effect a selective hydrogenation of said highly unsaturated hydrocarbon; and said palladium is present on the skin of said catalyst composition.

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52. (Thrice Amended) A process comprising contacting a fluid with a composition wherein

said fluid comprises an olefin and a highly unsaturated hydrocarbon;

G2 said composition consists essentially of (1) palladium, (2) silver, (3) an alkali metal or an alkali metal-containing compound, (4) a selectivity enhancer selected from the group consisting of lead, bismuth, thorium, gallium, tin, antimony, germanium, arsenic, cadmium, mercury, and combinations of two or more thereof, and (5) an inorganic support selected from the group consisting of silica, alumina, spinel, and combinations of two or more thereof;

wherein the metal of said spinel is selected from the group consisting of zinc, magnesium, calcium beryllium, strontium, barium, radium, iron, manganese, zirconium, molybdenum, ruthenium, rhodium, cobalt, germanium, tin, and combinations of any two or more thereof;

the weight % of said palladium in said composition is in the range of from about 0.0001 to about 5%;